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NEW FRONTIERS IN SCIENCE COMMUNICATION

INNOVATIVE MODELS, METHODOLOGIES, SKILLS FOR THE DIGITAL TRANSITION IN THE FIELD OF SCIENCE COMMUNICATION

n°4

NEW FRONTIERS IN SCIENCE COMMUNICATION

2024 July-September

The SCI-CO+ Magazine

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On the cover:

Title: As real exoplanets were revealed to be unlike Earth, fictional exoplanets also became less Earth-like.
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Sci·Co+ High Professional Skills for Advanced Scientific Communication

PARTNER

In this issue...

This issue opens with a reflection on the centrality and necessity of effective science communication in the article 'The communication of post-covid science'. This piece takes us back to 2020, when the pandemic forced many institutions, including museums and science centres, to revolutionise their exhibition and teaching activities. Città della Scienza's 'hands-on' methodology, for example, was not viable during the closures, but this did not prevent them from finding new ways to engage the public through digital technologies, such as the Online Interactive Lab and Passione Virale. The article 'Principles, models and experiences for science communication' focuses on the results of the first edition of the master's course in 'Expert in Communication and Promotion of Scientific Culture', organised by the University of Naples Suor Orsola Benincasa together with Fondazione IDIS-Città della Scienza. This story is told by the master's course participants themselves who recount their first-hand experience, giving us a living testimony of the course and the contributions that followed. Another important theme is that of inclusion, dealt with in the article 'Inclusive communication between robots', which describes the RomeCup, an event dedicated to robotics and artificial intelligence. The RomeCup is an example of how modern technologies can promote accessibility and put people at the centre of the communication process. The event uses interactive activities and creative workshops to involve participants in the processes of technological innovation and scientific communication. Finally, the article 'Astronomy-Co+. The evolution of astronomy communication over the last sixty years' explores how the use of modern technologies has enriched the communication of astronomy, making it more accessible and interesting to the public. Thanks to the Internet and the Web, information sources have proliferated, and high-resolution multimedia material has revolutionised science communication, as demonstrated by the historic 'Quark' programme. Astronomy has reached a wide audience through scientific discoveries accompanied by spectacular images captured by telescopes and probes. The article also highlights how digital tools such as smartphone apps and virtual reality environments make the observation and understanding of astronomical phenomena more accessible and attractive.

The editorial piece in this issue further addresses the topic of scientific communication, while investigating some aspects that could make it even more engaging. In today's context that focuses more and more on digital environments, the tendency is to overlook the importance of the physical experience, forgetting how the human mind also needs the body in order to best take in new information. The body is an integral part in our way of understanding and interacting with the world and this has recently been captured by the new approaches to experimental and embodied learning with an integration of a 'phygital' mode that can somehow merge the physical and digital worlds. At the same time, a reconnection with nature should be considered, which is also less and less present but equally fundamental for envisioning novel learning processes that can transmit knowledge with a sense of wonder and authenticity.

The SCI-CO+ project is part of this great panorama that endeavours to prepare and train professional science communicators in advanced methodologies to better engage their audiences. This practice is suitable in traditional environments, such as museums, but also through innovative virtual experiences. The SCI-CO+ project thus represents the new frontier of science communication, a discipline that continues to surprise.

SUMMARY

NEW FRONTIERS IN SCIENCE COMMUNICATION

We focus more on experiential and embodied learning and phygital modes for empathetic, sensory and deeply human digital science communication.

by Alessandra Drioli

In an era when science communication is increasingly going digital and taking place online, it is crucial to recognize the potential of experiential and embodied learning in conveying scientific concepts in an effective and engaging way. To this we add that the implementation of the phygital mode - a fusion of the physical and digital modalities - opens new doors for engaging users even more fully. Finally, all of this must take place within an overall context of reconnecting with nature.

Integrating these three fronts not only allows us to harness the potential of digital technologies, but also invites us to reconsider the role of physicality in learning processes. Indeed, our bodies are an integral part of how we understand the world, and too often we tend to overlook this aspect. Through physical and sensory experience, we acquire knowledge in an intuitive and profound way. Therefore, to merge these bodily dimensions into scientific learning means embracing a more holistic and comprehensive view of human experience.

Bringing our bodies back into meaningful contact with the environment helps us, on the one hand, to rediscover our sense of wonder and, on the other, to recognize our role in an ecosystem of which we are one of many components. Rather, in the digitized world in which we live, the trend is toward a distancing from the natural context, forgetting that we are part of it.

In addition to making learning more stimulating, these approaches promote both more effective comprehension and improved memorization, another sensitive issue in the current debate about learning processes. They also promote accessibility and inclusivity, allowing a wide and diverse audience to engage, and they also invite us to reconsider the parameters by which we do so, making the communication of science empathetic, sensory and deeply human. Above all, they help us not to lose sight of the goal for which we do all this, which is to contribute to the process of imagining desirable futures.

Therefore, investing in the development of digital science communication that incorporates experiential and embodied learning, phygital dimensions and reconnection with nature becomes the real challenge of innovation. For this to happen, a continuous effort is needed in designing new experiences with the collaboration of scientists, communication experts, software developers, designers and many other professionals. With the SciCO+ project we are working toward this ambitious goal.

Alessandra Drioli
Manager of the Science Centre of Città della Scienza

COMMUNICATION OF SCIENCE POST-COVID

by Rosa Procolo

Starting from the consideration that the museum is not exclusively a place for the preservation, collection and promotion of cultural heritage, but a vital space for learning, the article investigates the role that technologies and media played during the first phase of the spread of the Covid-19 pandemic in a museum setting like our Science Centres, based on the 'hands on methodology. It reflects on how some museum practices, such as educational activities and guided tours, have changed, and on the digital initiatives proposed by Science Centres to reconnect with the public during the period of social isolation and become an integral part of the system today.

DIDACTICS AT THE TIME OF COVID

Distance education has become a necessity in the school setting following the spread of the Covid-19 pandemic. Since March 2020, the month in which the virus exploded violently in our country, teachers and students have been able to continue their work thanks to online learning. But in museums and other places of culture and education, what has happened? How has the situation been dealt with?

The succession of decrees and the anxieties produced by the rising number of cases have promptly diverted attention from the importance of thinking about museums as an educational space. Before this crisis, the museum served many purposes. It was a place of presiding over culture and identity, of storytelling, and of developing critical and divergent thinking. It was an active place for inclusion, for the disruption of stereotypes, and for growth.

These multifaceted spaces suffered. One in ten museums remained closed due to the pandemic, while 80 percent had to revise their spending plans for future exhibitions and displays to cope with the loss of revenue caused by the drastic drop in admissions.

Hologram projection with DIY projector
Fonte: internet_ https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTcrFxN4j7ycT6A23y2dsfW6VSwQej9IWzH_dF8LiszmdyhKEB2

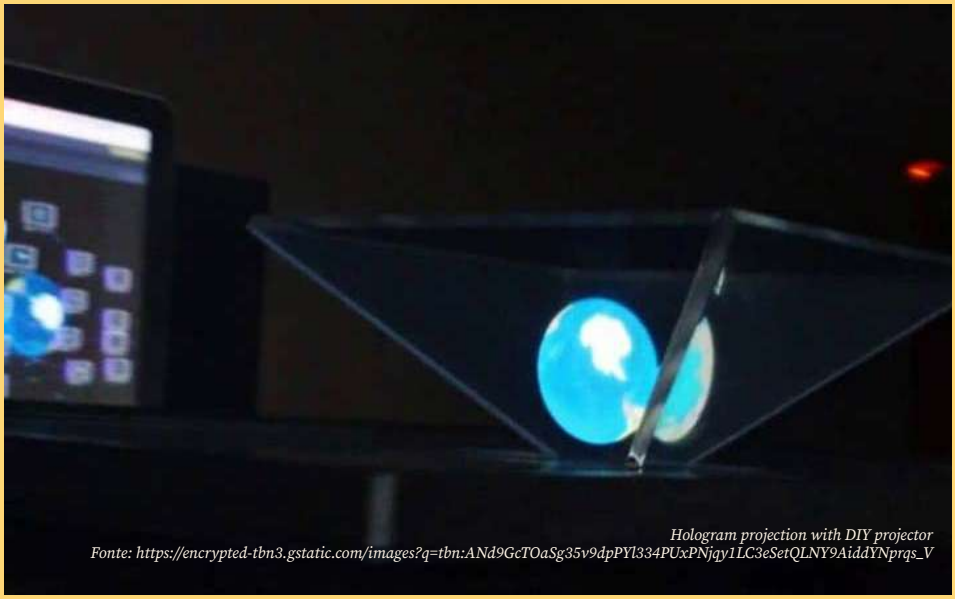
CITTÀ DELLA SCIENZA DURING THE PANDEMIC

Even though the gates were closed, the interactive exhibits were barricaded inside, and much of the staff was forced to stay home, there were plenty of projects to plan, and new ways to engage with our community. On air and on web, Città della Scienza shortened the distance!

We continued to offer our activities remotely, with Planetarium shows, interactive labs and family demonstrations live from Corporea, our human body museum. Seizing the 'bright side' of the Pandemic, an interactive exhibition on viruses, Passione Virale https://www.passionevirale.it/, was created and developed, in which you can see three-dimensional images and objects, read in-depth texts, and move from one environment to another. Among other activities, the Digital School Catalogue was also created; Distance Learning proposals with dozens of workshops that are now included in the official school catalogue to make the distance learning experiences increasingly interactive.

ONLINE INTERACTIVE LAB

'Let's get into a cell' is one of the online activities proposed during the pandemic which had initial and continued interest. The goal of this activity is to acquire and integrate knowledge about cells, starting from their various types to the most diverse forms and functions of the 'bricks' that 'build' the human body. Students learn how to recognise the differences between cell type with a closer look under the microscope. With the support of a PowerPoint presentation and a 3-D animation, the children can 'enter a



Hologram projection with DIY projector
Fonte: https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTOaSg35v9dpPYl334PUxPNjqy1LC3eSetQLNY9AiddYNprqs_V

REFERENCES

Cristiana Mazzani, "Digital for school: 17 platforms for distance education", NetworkDigital 360, https://www.insidemarketing.it/musei-e-coronavirus-iniziative-digitali/

Virginia Dara, "Closed for coronavirus, museums are reformulating the very idea of cultural experience" , Inside Marketing, https://www.insidemarketing.it/musei-e-coronavirus-iniziative-digitali/

Mercedes Auteri, "Closed but accessible museums. 11 online educational proposals" , Artribune, https://www.artribune.com/professioni-e-professionisti/didattica/2021/01/musei-attivita-online/

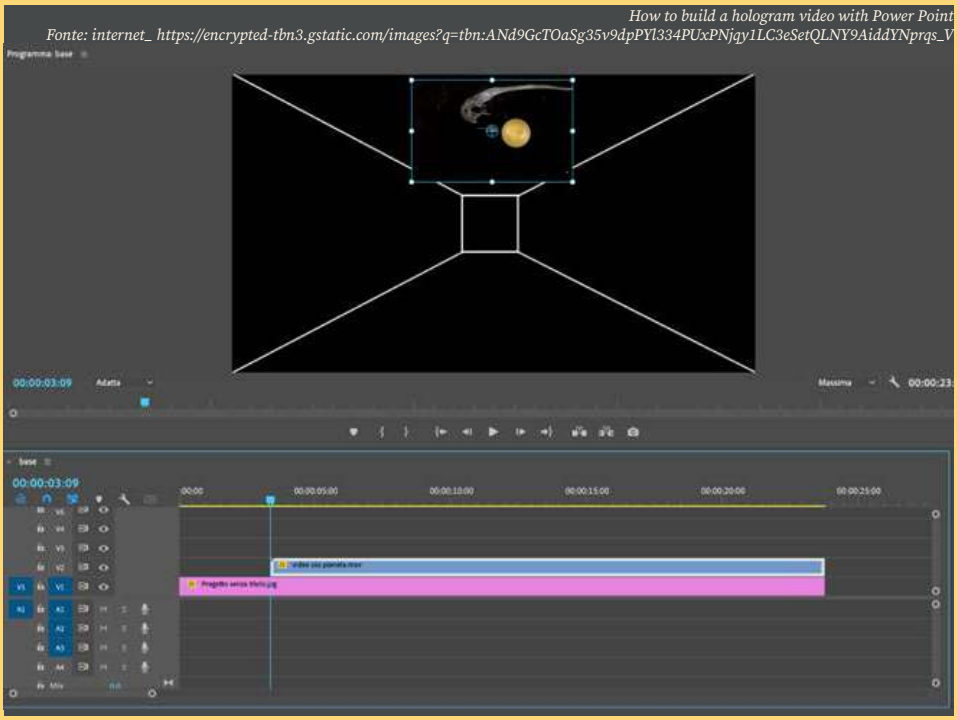
cell' and its various components to understand its structure, organelles and the differences between the three main types of cells. They move on to a closer look at that which makes up the human body through the many shapes that characterise cells and the functions they perform. Using a powerful instrument, the optical microscope, students are able to easily set up slides and explore the cells in detail. As a last step, again helped by the guide, students try to build a hologram stand and visualise cells in 3-D using free hologram videos on YouTube. To make our hologram stand, children use a set of numerical coordinates, a few sheets of acetate, a pen, a ruler and scissors, to construct a truncated pyramid. In line with the philosophy of our Science Centre, to make the distance activity as practical as possible, upon booking we send the teacher a list of easy-to-find materials. This ensures that during the activity, all the children have a teaching kit that they can use and explore, step by step, with the guide.

After constructing their stand, students must be in a sufficiently dark environment and follow this YouTube link on their smartphones/tablets https://www.youtube.com/watch?app=desktop&v=EZl_8mG1f2E. Then they can view the hologram of cells, observe their different shapes and sizes as well as a series of anatomical features that determine their physiology. The activity concludes by showing kids how they can create custom holographic videos simply by using the PowerPoint tool and animated images with a transparent background.

CONCLUSIONS

Undoubtedly, remote engagement brings with it both positive and negative aspects. In the case of our Science Centre, where all activities are designed and developed with a 'hands on' methodology, you certainly cannot feel the excitement of touching interactive exhibits, just as you cannot interact directly with other visitors, challenge each other in competitions or collaborate to solve puzzles. At the same time, remote engagement allows you to view an exhibit online from the comfort of your home or conduct an interactive educational activity directly from the classroom. These options increase the number of possible users and amplifies national and international provenance.

From our experience, we strongly feel that museum programme coordinators need to think of online engagement not as an exclusion of meaningful participation, but as a tool to enhance it.



How to build a hologram video with Power Point
Fonte: internet_ https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcTOaSg35v9dpPYl334PUxPNjqy1LC3eSetQLNY9AiddYNprqs_V

Rosa Procolo
is part of the project team
at the Science Centre of Science City

PRINCIPLES, MODELS, AND EXPERIENCES FOR SCIENTIFIC COMMUNICATION

The master's programme in 'Expert in Communication and Promotion of Scientific Culture,' promoted by UNISOB and Fondazione IDIS - Città della Scienza, reflects a continuously evolving reality

by
Maria Vittoria Gargiulo,
Simona Lattero,
Lorenzo Cavallo,
Lorenzo Cusimano

The Þrst edition of the master's programme in 'Expert in Communication and Promotion of Scientifc Culture' comes to an end. In the following article, the students recount their experience, describing the objectives, contents, and laboratory activities carried out during the course.

INTRODUCTION

The master's programme in 'Expert in Communication and Promotion of Scientific Culture,' organised by the University of Naples Suor Orsola Benincasa in collaboration with Fondazione IDIS-Città Della Scienza, is based on the idea of transforming science communication into an exciting adventure. Launched in the academic year 2023/2024, the course serves as a beacon of innovation, offering a comprehensive curriculum designed to equip students with the necessary skills to thrive in the dynamic field of science communication.

From the outset, the master's programme captures attention with its breadth of scope, covering diverse areas such as science communication, journalism, museology, and event organization. Each module is carefully crafted to foster a deep understanding of the subtle nuances of communicating scientific concepts across different platforms and to diverse audiences.

One of the most fascinating aspects of the programme is its flexibility and accessibility. As a distance learning initiative, it caters to students from diverse geographical and cultural backgrounds, fostering a rich tapestry of perspectives and experiences. Through online learning opportunities and interactive sessions, participants delve into a myriad of topics, interacting with industry professionals ready to share experiences and establish collaborations.

At the heart of the master's programme is a commitment to nurturing well-rounded professionals capable of making significant contributions to the communication and promotion of scientific culture. To achieve this goal, the curriculum is structured to develop a wide range of skills essential for success in the field.

A highlight of the programme is its emphasis on practical training activities. Through exercises, case studies, and internships, invaluable hands-on experience is provided, allowing students to apply theoretical knowledge to real-world scenarios.

Consistently encouraged to explore the ethical dimension of science communication, the entire course revolves around the importance of conveying accuracy, transparency, and accountability to underscore the significant impact that the work of science communicators can and should have on shaping public perceptions and attitudes towards science.

Furthermore, the relationship between storytelling and science has enabled us to learn how to create engaging narratives that resonate with diverse audiences. By harnessing the power of storytelling, it is possible to effectively communicate complex scientific concepts in ways that capture attention and inspire profound changes in people's lives.

Moreover, the programme provides tools for navigating the increasingly complex landscape of cross-media communication. In an era defined by digital innovation, the ability to leverage various media platforms to disseminate scientific knowledge is indispensable. Whether through traditional media, social media, or multimedia channels, we can reach distant and diverse audiences, igniting a passion for scientific inquiry in all its facets.

In this sense, this master's programme is more than just an academic pathway; it is a transformative journey that enables individuals to become agents of change in the field of science communication. With a holistic curriculum, practical training activities, and a commitment to ethical practice, the programme provides the skills and knowledge necessary to navigate the complex terrain of science communication with competence and professionalism.

THEORETICAL LESSONS AND SEMINARS

Seeking to encapsulate within a single discourse the myriad insights offered by the master's program, it is possible to obtain a concise reflection on the state of the art of science communication in today's society. Starting from a seminar held by the Director of the Science Centre at Fondazione IDIS-Città della Scienza, Professor Luigi Amodio, the evolution of science museums was first reconstructed. This evolution represents a gradual transition from places of collection and preservation to increasingly dynamic spaces, where interaction accompanies exhibition. The goal, at a certain point, was no longer just to display individual artifacts and/or entire collections, but to highlight the study done on them; not just to reproduce and make visible the single scientific phenomenon but also the research to discover it. As reiterated during the intervention of the President of ICOM Italy and Former Director of MUSE - Museum of Science of Trento - Dr. Michele Lanzinger, the turning point in the transition from the typical 'Cabinet of Curiosities' of the 1600s to 'Science Centres' coincided with the action of Frank Oppenheimer (1912-1985), brother of the better-known Robert. In the post-World War II context where people tended to greet science initiatives with coldness, he found himself teaching high school physics and explored the potential of experimentation in teaching. Doing led to understanding, a concept that became the essence of the teaching method of the American physicist (for whom 'If I listen, I forget. If I see, I remember. If I do, I understand.' according to active pedagogy). This model of direct participation also became the founding nucleus of the new conception of the science museum, where exchange and interaction were favoured. Starting from the birth of the Exploratorium in San Francisco (1969), the visitor is invited to participate in the investigation of real phenomena through hands-on exhibits, leaving behind the idea of 'do not touch.' This results in a museum experience that is no longer individual, but rather creates a sense of community through visitor interaction, conversation, and cooperation.

Through the seminar held by Professor Francesca Nicolais, professor of design and digital graphics at the University of Naples Suor Orsola Benincasa, the importance of the so-called engagement was explored. In line with Jorge Wagensberg's conception of the 'Total Museum' (1948-2018), in addition to hands-on interaction, other types of minds-on and hearts-on interactions are necessary. Through gamification, or the use of game design elements, motivation, commitment, and participation can be amplified, leading users to act and not remain passive observers, according to Csikszentmihalyi's 'Flow Theory'. At the same time, the establishment of a community can constitute an additional factor of extrinsic motivation. Gamification, in fact, aims not to make people win or lose but to favour, through

role-playing games, play decides, and other strategies, discussion and sharing of ideas. From a one-way fruition, therefore, we move to a multidirectional and relational one; from storytelling to story-living/story-doing. It is clear, in this sense, as explained by Professor Paola Villani, Director of the Department of Humanities at the University of Naples Suor Orsola Benincasa, that narration cannot be limited to a simple story, but must aim to delectare, movere, flectere. To this end, successful communication must enter the story and narration of the users of scientific content, because if their needs and motivations are not centred, there can be no effective narrative or communication of science. Thus, narratology goes beyond a strictly literary channel to find new stimuli in genetic and cognitive psychology, as well as in neuroscience.

The seminars were followed by multiple lessons held by experts in the field to deepen the different facets that characterise science communication. Firstly, from a popular science point of view, the ethics of information were analysed with Dr. Marco De Marco, Journalist and Director of the School of Journalism at the University of Naples Suor Orsola Benincasa. This seminar also explored the role of words as protagonists to craft effective narratives with rich meaning. In this sense, through the lesson of Dr. Salvatore Fruguglietti, Head of the cooperative society 'Le Nuvole', it was evident that it is possible to use theatre to bring science to the stage. The importance of symbols, multiplicity, terminological redundancy, recovery of the naturalness of the story, curiosity, and parallel stories, are all factors that can contribute to making science as clear, lucid, and usable as possible, to help create a (scientifically) conscious citizenship. Then, with Professors Carla Langella, professor of Industrial Design at the University of Naples Federico II, and Carla Giusti, Exhibition designer and Director of EXIT at Fondazione IDIS-Città della Scienza, the importance of design for science communication was evaluated according to a systemic and holistic approach, so that from interaction design we pass to ergonomics design and, therefore, to exhibition design. Through appropriate graphic modalities and considering the objectives to be transmitted, the target audience, and any constraints to be taken into consideration, it is possible to design a successful exhibition script according to the dictates of accessibility, interest, scientific accuracy, and inclusivity. In this sense, a crucial role can also be played by the introduction of new technologies, as made evident by Professor Roberto Montanari, Professor of Digital Humanities at the University of Naples Suor Orsola Benincasa, in the lessons of Interaction Design, so that it becomes easier to recreate the sought-after experiential ecosystem.

Remaining in the digital world, the importance of new media was analysed, which are fundamental to reaching an ever-wider audience. Through the interventions of Dr. Luca Mosele, Operational Manager of Communication at Fondazione IDIS-Città della Scienza, and Dr. Clementina Sasso, Researcher in Solar Physics at INAF-Osservatorio Astronomico di Capodimonte, the importance of reliability, scientific rigor, presentation, and style as quality indicators necessary for effective and impactful web communication was evaluated. As a demonstration of this, research institutions and, more generally, representatives of the entire scientific community, have decided to increasingly invest in scientific dissemination. During the meetings held by Dr. Francesca Messina, Head of the Communication Unit of the CNR-National Research Council, and Dr. Francesca Cavallari, Senior Researcher at INFN-National Institute of Nuclear Physics, the attempts made by their institutions in the development of communication formats were retraced, both from a digital and analogue point of view. This exploration focused on exhibitions, capable of evolving over time according to needs, and differentiated interactive activities, designed to be temporarily hosted in different locations or adapted to the available spaces and the purposes of the clients.

Last but not least, the coordination of Professor Alessandra Drioli. Head of the Science Center at Fondazione IDIS-Città della Scienza, Professor of Museum Management, Cultural Heritage, and Tourism 4.0 at the University of Naples Suor Orsola Benincasa, was central. She was capable, through the precious support of the didactic tutor, Dr. Guido Guarino, of designing individual lessons that each explored the principal multifaceted discipline of science communication. At the core of her interventions, there has always been the intention to ellucidate the air of change that is affecting museums and all cultural institutions: that is, the awareness of the social role they can play as a real low-cost 'cure' for body and spirit. Well-being for a cultural welfare is the concept that museums can aid in the constant search for well-being through effective communication strategies to integrate the cultural dimension into this pursuit of a balanced life.

LABORATORIES AND PRACTICAL ACTIVITIES

In line with the pedagogical-didactic approach based on experiential learning - characteristic of the structure of the master's programme - one of the fundamental modalities of the programme was the

laboratory. Through various activities and exercises, it was possible to directly and empirically test the theoretical knowledge acquired during the 'frontal' lessons,from theatre communication exercises with Salvatore Fruguglietti to journalistic writing exercises with Marco Demarco. A few of the most fascinating and formative laboratory activities will be considered here to explore their contribution to the programme.

With Francesca Nicolais, we had the opportunity to explore the world of Gamification by designing a game-based activity on a scientific theme targeting high school students, all using tools presented during the lesson. These topics included user study, Flow Theory, target personification, and scenario ideation. After reflection, we divided into groups and assessed all the necessary components of game design: the title, theme, objectives, description - of the modes, type of game, target, and technology used -, game flow, steps for implementation, skills and professional figures required. Thanks to this activity, it was possible to fully understand all the steps necessary to move from the idea to the realization of a scientific game capable of emotionally engaging users.

With Carla Giusti, we tried to plan the structure of an exhibition both from the design and content and staging point of view. Divided into two groups assigned to two scientific themes (disappearance of bees and women in science), we were able to practice the notions learned in the previous lessons on the design of museums, exhibitions, and exhibition paths with criteria of sustainability, accessibility, and inclusion.

Next, with Luigi Amodio, we worked on a participatory design laboratory to design a museum exhibit on the life and work of American physicist Robert J. Oppenheimer (1904-1967). Riding on the success of Christopher Nolan's film Oppenheimer (2023), the idea was to develop a short presentation crossing science, history, and imagination. Students selected the type of exhibit (hands-on, multimedia, diorama, etc.) for the related scientific content, and created an original project of science communication. Thanks to this laboratory, we were able to employ the knowledge acquired in the theoretical lessons on scientific museology while stimulating our creativity by imagining alternative and unpublished methods of science communication in the museum field.

Finally, with Giovanni Pirone, the astrophysicist responsible for programmes and activities at the 3D Planetarium of Fondazione IDIS-Città Della Scienza in Naples - we tried to imagine different types of events and evenings organised inside the planetarium of Città Della Scienza. With the only constraint of the number of seats available inside the planetarium (114), we were able to design activities to promote the world of astronomy and astrophysics through recreational activities and events. In short, thanks to an engaging and immersive study path, we were able to experience first-hand the importance of experiential learning and the most modern strategies of science communication.

CONCLUSIONS

The diversity of topics addressed during the master's programme reflects a world in continuous evolution. Along with science, the communication of science evolves, enriching and integrating all the tools available to bridge the gap between science and the public. Closing this schism represents the main mission of today's science communicators, manifesting the literal meaning of the expression 'communicating science' starting from its etymology. Indeed, 'communicate' derives from the Latin word 'communicare,' which translates to 'make common,' and which in turn derives from 'commune,' meaning 'to fulfil one's duty with others.' The word 'science,' on the other hand, derives from 'scientia,' which means knowledge. Starting from the etymological meaning, then, the science communicator is the one who 'fulfils their duty by making knowledge common.'

For too long, however, scientists and the public have lived on different banks of the same river. On one side, scientists, with their world made of technique, data, and numbers; on the other, the public, lacking the tools and intellectual stimuli to understand scientific phenomena. However, this gap is no longer sustainable. In the last century, the products and consequences of scientific progress have become an integral part of the daily life of every individual. Just think about how complex it is today to engage in a conversation without discussing topics such as artificial intelligence and new technologies, climate crises, sustainability, and resource usage.

Until the twentieth century, similar themes would have been the prerogative of a narrow elite of intellectuals and men of science. Today, these are debates in which everyone participates. To these ever expanding science topics are new challenges that the world will have to face, and for which everyone must be prepared and aware. The recent experience of the COVID pandemic has shown us how much the world we live in is based on a fragile balance to which we all contribute, dependent on the role of conscientious science communicators in making us aware citizens and active protagonists of the challenges of the world we live in. This is the most complex and noble challenge that future science communicators will have to face: spreading scientific knowledge among people so that they can make informed decisions, thus enabling the scientific community to work for the good of all.

It is, therefore, a matter of continuing along the path traced by Frank Oppenheimer, who first understood that bringing science to the public is a political act of fundamental importance. It is a means to build a more aware world, where science becomes a driver of progress rather than decline and destruction.

For this to be possible, however, science must be able to reach the public. This is where science communicators come into play, to make complex issues accessible to all through multidisciplinary communication techniques that integrate elements of theatre, design, interaction, and gamification, which allow the translation of numbers and data into emotions and perceptions.

This is precisely the goal of the master's programme in 'Expert in Communication and Promotion of Scientific Culture': to train new professionals capable of using the latest tools of science communication to engage the general public by stimulating their perceptions, minds, and hearts.

Maria Vittoria Gargiulo - Postdoctoral Researcher at the University of Salerno, specializing in risk communication and stakeholder engagement, is involved in various projects funded by the EU focusing on resilience and extreme weather events.

Simona Lattero, Architect - specializing in urban regeneration, sustainable design, research, and innovation for cultural assets and activities - and Teacher in Scuola Secondaria.

Lorenzo Cavallo – Master's graduate in philosophy, focuses on Moral Philosophy, Phenomenology, and the relationship between science and philosophy.

Lorenzo Cusimano – Neuroscientist.

INCLUSIVE COMMUNICATION BETWEEN ROBOTS

The RomeCup model for exploring technology-intensive processes in a participatory manner

by Alfonso Molina, Mirta Michilli

The RomeCup is an original vertical accelerator model for development, involving schools, universities, research centres, start-ups, SMEs and production districts. It is also a communication and scientific dissemination laboratory to explore innovation processes with a very high technological density.

Mihai Dragusanu, winner of the 2nd Research Award

HOW MUCH DO WE KNOW?

After finishing school, the process of scientific literacy of citizens follows different paths depending on educational qualifications and age. For over twenty years, Observa Science in Society has been investigating these processes with its Science, Technology and Society Monitor, and every year it reveals fascinating trends. Today, only half of Italians know how to distinguish between the following true or false statements: the Sun is a planet; antibiotics kill both viruses and bacteria; electrons are smaller than atoms; nitrogen is the most widespread element in the air; the bit is the unit of measurement of the amount of information. Professor Emeritus Tullio De Mauro argued that data such as these 'should not be published in specialised journals but should be presented on the front pages of major newspapers to

try to shake the torpor'. De Mauro was very concerned about the low level of scientific knowledge in the population, which he considered to be a threat to democracy: 4 out of 10 people visited a 'witch doctor' when they cannot solve a problem and 8 out of 10 do not understand a newspaper article, let alone a scientific text. De Mauro claimed that Italians have a predilection for reasoning 'by the light of their noses' and lack a 'propensity for rigorous ascertainment of facts and data, for precise measurements and descriptions, for direct experience'. Faced with the increasing complexity of our society, which is accelerated by the rapid rate of technological advancement, it is important to stem the phenomena of irrationality. We need innovative community programming that, starting from schools, build a practice of accurate and authoritative scientific communication, helping all citizens to have a direct experience of the benefits of technology. Otherwise, with such fragile basic scientific competence, how can we face the great challenges posed, for example, by artificial intelligence?

Presentation of the Manifesto for Collective Action on AI and Robotics

THE ROMECUP AS A 'BROADCASTER' OF SCIENCE AND TECHNOLOGY

When we present the RomeCup [romecup.org] to those who do not know of it, we describe it as a three-day multi-event dedicated to the ecosystem of innovation. Since 2007, it has been bringing new generations closer to the study of scientific subjects while developing skills and professional profiles for employment and research. Young people discover the excitement of learning in an open context, collaborating and sharing knowledge and skills, while exploring the most inclusive frontiers of technology. It is an original vertical accelerator model for development, involving schools, universities, research centres, companies and institutions. Events range from educational workshops, robotics competitions, university orientation sessions, creative contests, hackathons, and inspirational talks. We define the RomeCup as an extraordinary immersive experience in the present and future of mankind.

The RomeCup, thanks to its various components, is also an extraordinary laboratory of scientific communication and popularisation to explore innovation processes with different audiences. Starting with the youth, we help different generations to understand the value of research and science, and to familiarise themselves with scientific processes and reasoning.

With the creative contests, organised in several disciplines (agriculture, health, transport, among others), we propose that school and university students work together to find innovative solutions to 'real world' problems. Then, they try their hand at telling the story to the public and a jury of experts with the elevator pitch formula, an effective presentation technique that only spans a few minutes, and relies on a few slides.

It is interesting to see how the press reiterates these experiences, contributing to their multiplier effect. Success stories are shared among peers, at school, in the family, and in the communities to which students belong. Often times, a local authority announces an important achievement by a young citizen with an official communiqué. In 17 editions of RomeCup, reports by journalists have been aired on public service and private broadcasters' news programmes during prime time several times, reaching millions of viewers. How do we encourage this result? The communication is not aimed at publicising the three-day event, but at highlighting the different experiences it hosts through many different points of view: from the robot whisperer, a special simultaneous translation skill for any international guests, to the demanding teamwork required to participate in a competition on a par with international robotics competitions. We tell the story on mondodigitale.org and romecup.org and edit content for our various social channels, from LinkedIn, most frequented by companies looking for young talent, to Instagram.

MIHAI'S 'GOLD SUIT

Flexible, modular, customisable, as easy to wear as a suit, as comfortable and as valuable as a 'gold suit'. This is how Mihai Dragusanu, 30, imagines assistive and rehabilitative technology for the upper limbs. Dragusanu is a researcher at the University of Siena's Department of Information Engineering and Mathematical Sciences, and winner of the second edition of the Most Promising Researcher in Robotics and Artificial Intelligence, promoted by the Fondazione Mondo Digitale ETS with the University Campus Bio-Medico of Rome in collaboration with Italian Tech and Gruppo Gedi. Artificial intelligence and robotics play a crucial role in Dragusanu's suit, resulting in advanced technology that the young researcher knows how to explain effectively to less specialised journalists, with a smile and disarming humility. The images of his victory reached as far as San Quirico d'Orcia, a Tuscan village famous for its thermal waters. Now its villagers have discovered what the inclusive use of technology can do to change people's lives.

THE PRIORITY OF TECHNOLOGICAL INCLUSION

At the last edition of the RomeCup 2024, which took place in Rome at the University of Tor Vergata (20 and 21 March) and at the Campidoglio (22 March), together with the Fondazione Mondo Digitale we presented a Manifesto for Collective Action on Artificial Intelligence and Robotics [https://www.mondodigitale.org/notizie/manifesto-unazione-collettiva-su-intelligenza-artificiale-e-robotica] and launched a call to action, addressed to organisations and individuals to collaborate in the creation of a long-term collective initiative. In summary, our Manifesto affirms the principle of prioritising inclusion in order to promote equitable access to technology, foster knowledge, encourage resource sharing, enhance multidisciplinary technology education, support educational innovation and vocational training, encourage research for sustainable development, provide continuous training for workers, and promote inclusive technology solutions and transparent communication. To join the Manifesto or receive more information, please write to manifesto@mondodigitale.org. We envision science communication that puts people at the centre so that they can freely and responsibly design the future they desire. .

Alfonso Molina, personal chair in Technology Strategy at the University of Edinburgh and scientific director of the Fondazione Mondo Digitale

Mirta Michilli, Director General of the Fondazione Mondo Digitale

ASTRONOMY-CO+

The evolution of the communication of Astronomy over the last sixty years.

by Emilio Sassone Corsi

OVER THE LAST SIXTY YEARS, ACCESS TO ASTRONOMY AND ITS DISSEMINATION HAS EVOLVED SIGNIFICANTLY. ASTRONOMY IS ONE OF THOSE AREAS OF SCIENCE WHERE THE RELATIONSHIP WITH THE PUBLIC, CITIZENS, YOUNG PEOPLE, HAS BECOME INCREASINGLY CONSOLIDATED, MAKING CITIZEN SCIENCE A VERY DYNAMIC REALITY. IT IS ALSO AN AREA OF SCIENCE WHERE THE DIGITAL TRANSITION HAS PLAYED A PRIMARY ROLE IN FOSTERING SCIENTIFIC COMMUNICATION FOR INCLUSIVE PURPOSES.

I first approached astronomy sixty years ago in Naples, when my parents gave me a small telescope as a first communion gift. Since then, my passion has accompanied me through all the events of my life. In these lines, I would like to summarise my experiences of how the communication of astronomy has changed over the years and how we have arrived today at an astronomy that is fully capable of communicating its own extraordinary beauty.

Astronomy sixty years ago was studied in books and in Italy the only magazine that existed at the time was 'Coelum'. We would admire the beautiful photos, almost all in black and white, of the planets of the Solar System, of some nebulae or distant galaxies. Then, with my brother Paolo, we would go to the terrace to learn how to orient ourselves in the sky, study the position of the stars and constellations, point our binoculars or telescope, and observe. We were absolutely amazed when we were able to observe Saturn, the Lord of the Rings, in that small telescope we had. Observing a globular cluster like M13 in the constellation of Hercules or the Galaxy M31 in the constellation of Andromeda was quite difficult in the sky of Naples, which was already flooded with light pollution.

Every now and then a scientific programme was broadcast on TV. In Italy there was also the programme 'Horizons of Science and Technology' (by Giulio Macchi), but it was broadcast on Sunday evenings— rather late for those who had to go to school the next day.

The most important technical-scientific communication event was, of course, the Moon landing on 20 July 1969. It was also a Sunday, and I remember that we did not go to school the next day because we spent the whole night in front of the TV.

Genuine and more extensive science communication in Italy began with the TV programme Quark (1981), later to become Superquark (1995), by one of Italy's greatest science communicators, Piero Angela, but I was at university by that point. Every now and then they would talk about Astronomy or some space mission, but always too little compared to my need for knowledge.

The real quantum leap in the communication of Astronomy came with the Hubble Telescope, launched in 1990 and still in operation today. Hubble has represented a turning point in the world, not only for the enormous number of scientific discoveries it has made but above all, I would say, for the tens of thousands of spectacular images it has sent us, and which have been widely publicised in the media. The communication of Astronomy has benefited enormously as astronomical magazines have multiplied by feeding on these images, groups of Astronomy enthusiasts have flourished throughout Italy and the world, many universities have promoted new degree courses in Astronomy and Astrophysics, astronomy-themed conferences have multiplied, and finally some great popularisers in Italy — including Margherita Hack, Nanni Bignami, and Franco Pacini — have been able to share their enthusiasm and the incredible beauty of Astronomy to the general public

DIGITAL PHOTOGRAPHY AND THE WEB

The advent of digital photography and the Internet have led to an extraordinary proliferation of information sources. Images from Hubble and the many other space and ground-based telescopes have flooded the Web with marvellous and increasingly clear images. Astrophiles, equipped with relatively small telescopes, have developed ever better imaging and image processing techniques to the extent that some of the photos compete with the most beautiful Hubble images. In short, the digital world has generated a democratic astronomy where even a small telescope, if used well by a dedicated astrophile, can produce good science. All this has happened in the space of a few decades and has completely transformed astronomy, initially intended for a few professionals, into a popular and attractive science that involves more and more masses of people.

Emilio Sassone Corsi. Physicist, former President of the Unione Astrofili Italiani and founder of the Associazione Tuscolana di Astronomia, lecturer in Economics and Innovation Management at the University of Rome 'Tor Vergata'.

Virtual Reality and Astronomy. A perfect combination to make astronomical objects far away from us real and almost tangible. Licence AdobeStock_574257526

CITIZEN SCIENCE

In fact, we speak of 'Citizen Science' ('Science of the Citizens'), when the value of the contribution of each individual to the evolution of knowledge is put at the centre. In our case, we speak of Citizen Science because the result obtained by a collective of observers is greater than an individual result. A very concrete example was the organisation and collective observation of a stellar occultation on 12 December 2023 when a small asteroid (319 Leona) occulted the first magnitude star Betelgeuse in the constellation Orion. The phenomenon was visible in Calabria. On that occasion, more than forty or so astrophiles from all over Italy travelled to the places affected by the phenomenon and recorded the star's decrease in brightness due to the occultation. The processing of all the recordings made it possible to study the shape of the asteroid and the composition of the atmosphere of Betelgeuse, a very special red supergiant. Similarly, whenever a total eclipse of the Sun occurs somewhere on the globe, thousands of astronomy enthusiasts gather to observe this phenomenon that is both wonderful and terrifying. Even today, many solar astrophysics studies are carried out during a total eclipse of the Sun, and observing the event through various instruments is very helpful in gaining a complete understanding of the phenomenon. This too is Citizen Science. Two total eclipses are expected in the Mediterranean basin soon: one on 12 August 2026 in Spain and one on 2 August 2027 in Tunisia, Algeria and Egypt. It will be an opportunity to combine tourism and astronomy once again.

COMMUNICATING ASTRONOMY AND THE NEW INSTRUMENTS

The communication of astronomy has made great strides. There is not a day without discussion of some new discovery or space mission to the Moon, Mars or some satellite of Jupiter. Astronomy is a very attractive scientific discipline, often much more so than other disciplines. Astronomy is one of the first sciences studied in schools as children learn about our galaxy. It is a way to digress into physics, chemistry, biology, mathematics, but also to find ways to connect with literature, poetry and art. In popularisation and didactics, astronomy can be used as a picklock to open minds to science; one starts with a beautiful image of a nebula and gets to explore what happens in a star, the processes of nuclear fusion, elementary particles, or perhaps what Giacomo Leopardi wrote in his essay on the history of astronomy. Connecting the dots from astronomy is very simple, does not require complex language, and topics remain more vivid in the memory of students and adults alike.

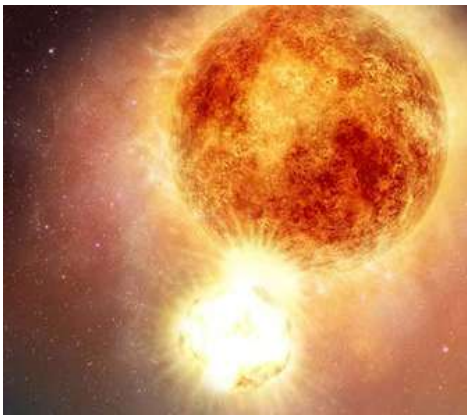
In addition to this, several devices have been added in recent years that facilitate a more immediate observation and understanding of astronomical phenomena. Let us look at a few examples.

Apps on the mobile phone to identify the starry sky

For some years now, there have been more than a dozen mobile phone apps that use the phone's internal GPS and orientation to show the starry sky, identifying constellations, planets, and the key deep sky objects. These apps are very useful, especially for beginners or when the sky is partly cloudy, and the stars cannot be clearly identified.

Virtual Reality and Astronomy

With 3-D viewers, which are now very common, it is possible to virtually experience the main astronomical objects. Users can glide over the surface of Mars, walk around the Solar System, or enter Saturn's rings and come out the other side. They can even visit the centre of our galaxy and observe the black hole that attracts all the stars around it. These are not fake images, but real 3-D reconstructions of these objects taken from observations made by the Hubble and JWST space telescopes and automated probes that have explored the planets of the Solar System.



Striking image of the star Betelgeuse, a red supergiant in the constellation Orion.

Smart telescope

In recent years, extremely compact, fully automatic telescopes have appeared on the market that know where they are through GPS and can point at objects in the starry sky with extreme precision. By means of a CCD camera placed in the eyepiece of the telescope, it is possible to observe, even from the centre of a large city, dimly lit objects because the CCD camera accumulates photons during the exposure, which our eyes are not capable of doing. Smart telescopes can capture the image and make it available on a computer and mobile phone for further enhancement. These instruments will bring many enthusiasts even closer to Astronomy, but something will inevitably be lost. Many astronomers will no longer be able to recognise the constellations in the sky because everything will be automatic. It is a bit like what happened many years ago when a simple calculator made us forget how to do a square root!

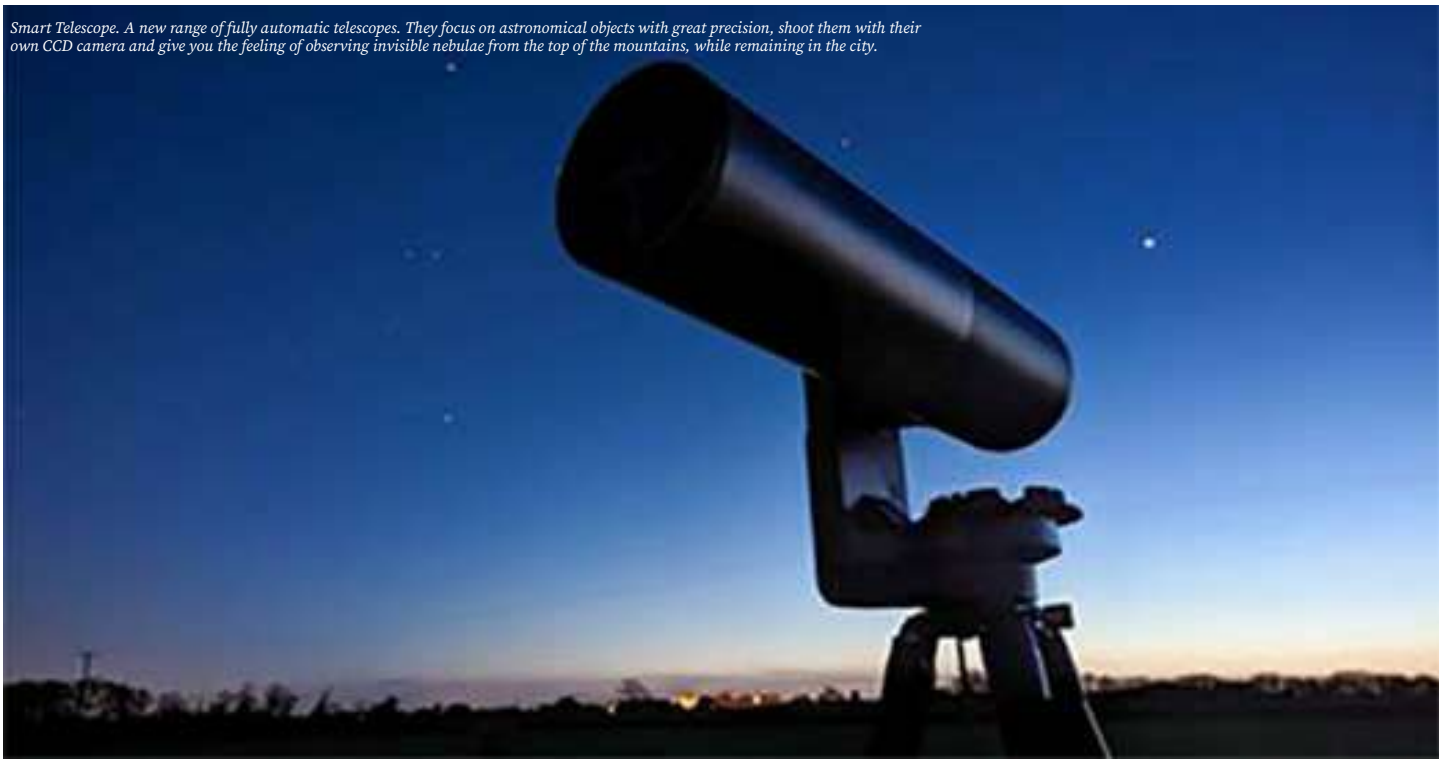
Hands-on astronomy

To help the blind or visually impaired understand the characteristics of an astronomical object, various projects have been developed that use 3-D printers to create physical models, allowing people to touch the object of their study. One very interesting project has been developed by NASA called 'Touch the Cosmos' (https://science.nasa.gov/science-research/astrophysics/touch-the-cosmos/).

Astronomy and sonification

Sonification is the transformation of relationships between data into perceptible relationships in the acoustic signal to facilitate communication or interpretation. Applied to astronomy, it allows objects such as nebulae and galaxies to be studied in a completely new way. For the blind or visually impaired, this technique can portray the shape of astronomical objects using appropriately modulated sounds. The Center for Astrophysics at Harvard University has set up a system of this kind that it has called 'A Universe of Sound', which provides a website with a wide variety of sounded objects. It can be found at: https://chandra.cfa.harvard.edu/sound/.

Smart Telescope. A new range of fully automatic telescopes. They focus on astronomical objects with great precision, shoot them with their own CCD camera and give you the feeling of observing invisible nebulae from the top of the mountains, while remaining in the city.



1 - 3 JULY 2024

HANOI - VIETNAM
FROM STREET EXPERIMENTS TO PLANNED SOLUTIONS

The need for a paradigm shift towards sustainable mobility to reduce car dependence in favour of active mobility is well established in the existing literature and in the main institutional and political agendas. As urban environments and mobility networks have become increasingly complex and dynamic, specific schemes and policies are needed.
The STEPS_2024 workshop focuses on the emerging theme of street experiments to support the transition to adaptive planned approaches for a lasting redesign and redevelopment of residual urban mobility spaces in social spaces. The goal is to address this problem from different and multidisciplinary points of view, involving urban planning and mobility, design and social sciences, traffic simulation, but also problem modeling and the search for optimal solutions by means of mathematical tools.

The purpose of the workshop is to improve discussions on criteria and applications, methodologies and useful tools to move from urban planning and street experiments from bottom up, temporary, tactical to lasting transformations and adaptive planned solutions in the reorganization of road space to increase the livability and accessibility of urban spaces.

Focusing on redesigning 'roads for cars' in 'roads for people', this workshop invites discussions, critical exploration, methodologies and tools on multiple issues on the subject.

Given the focus of the Conference on computational science issues, the STEPS 2024 workshop welcomes contributions on theoretical and computational aspects, proposals and applications from a wide variety of scholars on the proposed issues. Civil and environmental engineers, architects, urban and regional planners, mathematicians, geographers, GIS experts, among others, are welcome to contribute.

https://www.iccsa.org/

2 - 7 JULY 2024

LONDON - UK
SUMMER SCIENCE EXHIBITION

Discover state-of-the-art research and innovation at the Royal Society's unmissable Summer Science Exhibition, which will take place from July 2nd to 7th, 2024, a free interactive experience open to anyone with a curious mind. This is a free event, but please register your interest in Eventbrite.

This year, visitors can practice with personal brain scanners, listen to real ice core samples from Antarctica, admire a chandelier made from a waste product generated in fiber optic production, or learn how stem cells are revealing the secrets of the embryo. Learn more about exhibitor search and plan your visit.

Engage with over 300 passionate scientists as they unravel the secrets behind their revolutionary research. From mind-blowering exhibits to hands-on activities, this year's exhibition promises excitement for all ages.

Each of the 14 flagship exhibitions showcases incredible advances in science and technology. Whether you're a science buff or just looking for a fun day, the Summer Science Exhibition has something for everyone.

Online visitors will also be able to experience the buzz of the exhibition plan through our virtual content, including live streaming demonstrations, exclusive interviews and lectures.

Don't miss this opportunity to be part of a captivating exploration of the future of science. Mark the date on the calendar and join us for a week of unforgettable discovery.

https://royalsociety.org/science-events-and-lectures/summer-science-exhibition/

9 - 11 JULY 2024

SOUTH BEND - INDIANA, USA
BRIDGING DIVIDES: PCST INDIANA SYMPOSIUM ON PUBLIC SCIENCE UNDERSTANDING

The Public Communication of Science and Technology (PCST) Indiana Symposium, hosted by the University of Notre Dame, seeks to narrow the gap between academia and the public in understanding science. Over three days, stakeholders will converge to explore innovative strategies for science communication and engagement. Emphasizing civic science, the symposium addresses dialogue facilitation, accessibility, inclusivity, literacy, and trust-building. Key topics include building trust in the AI era and tailoring communication to diverse audiences. The event offers dynamic formats such as keynotes, panels, workshops, posters, and art-science communication. Attendees, including researchers and practitioners, will gain practical insights to enhance public science understanding, fostering collaboration and actionable strategies for societal progress.

https://sites.nd.edu/scicomsymposium

9 - 11 JULY 2024

DIJON - FRANCE
INTERNATIONAL CONFERENCE ON DATA SCIENCE, TECHNOLOGY AND APPLICATIONS (DATA) 2024

The purpose of the International Conference on Data Science, Technology and Applications (DATA) is to bring together researchers, engineers and professionals interested in databases, big data, data mining, data management, data security, and other aspects of information systems and technology involving advanced data applications.
Documents describing advanced methodologies, prototypes, systems, tools and techniques, and general investigation documents indicating future directions are also encouraged. Documents describing the original work are invited to any of the areas listed. The accepted documents, presented at the conference by one of the authors, will be published in the conference proceedings. Acceptance will be based on quality, relevance and originality. Both full research papers and work-in-progress are welcome. There will be both oral and poster sessions.
There are also special sessions, dedicated to case studies and business presentations, as well as demos or tutorials dedicated to technical/scientific topics: companies interested in presenting their products/methodologies or researchers interested in holding a tutorial, workshop or special session are invited to contact the conference secretariat or visit the conference website.

https://data.scitevents.org/CallForPapers.aspx#A1

10 - 13 JULY 2024

AMBURG - GERMANY
ISSCR ANNUAL MEETING 2024

The annual meeting of the ISSCR takes place this year in Hamburg, Germany, and is hosted by the International Society for Stem Cell Research. The event is the annual gathering of the best and brightest in the world in stem cell research and regenerative medicine, with an expected participation of more than 4,000 scientists seeking to learn about the most significant new advances of the year in the field.

With a rich 4-day programme of featured speakers, plenary sessions, workshops, abstracts, innovation showcases and more, the event's wide range of content will focus on six main thematic areas:

- Clinical applications
- Disease modeling and drug discovery
- Ethics, policy and standards
- New technologies
- Pluripotency and development
- Somatic stem cells, cancer and regeneration

Registration is now open, with discounted rates for ISSCR members, students and postdocs. A virtual ticket option is also available for those who cannot attend in person.

24-26 JULY 2024

CARDIFF - UK

UNVEILING THE BIG EVENT: WHERE STEM ENGAGEMENT FLOURISHES

Every summer, enthusiasts and professionals in STEM disciplines eagerly await the BIG Event, an annual three-day gathering dedicated to sharing knowledge, developing skills, and building relationships in the fields of Science, Technology, Engineering, and Mathematics (STEM).

What sets the BIG Event apart is its collaborative approach. Participants themselves are responsible for creating the programme, contributing presentations, workshops, and discussions to ensure a diverse and dynamic experience. This participatory ethos fosters an inclusive and stimulating environment where both seasoned veterans and newcomers alike can learn and share.

The upcoming edition of the BIG Event will be hybrid, offering both in-person sessions in the lively city of Cardiff and the opportunity to participate online. This approach aims to ensure accessibility and inclusivity, overcoming geographical barriers and allowing a wider audience to participate and contribute.

Registrations will open on 21 May 2024, with early bird discounts available for those registering for the entire conference. Each registration also includes a complimentary 12-month membership to the BIG, providing additional benefits and networking opportunities.

Whether attending in person or online, the BIG Event promises to inspire, connect, and foster professional growth. It's an unmissable opportunity for those looking to dive into the exciting world of STEM communication and contribute to its ongoing evolution.

https://www.big.uk.com/BIG2024

27 - 28 JULY 2024

TOKYO - JAPAN

SOCIAL SCIENCE, ENGINEERING, EDUCATION AND TECHNOLOGY (ICSET)

IFERP - Institute For Educational Research and Publication welcomes you to ICSET - 2024. Participate in the ICSET- 'International Conference of Social Sciences, Engineering, Education and Technology-2024' to acquire knowledge and skills. We invite scholars, students, professionals and everyone to ICSET - 2024 in Tokyo, Japan. This international conference provides a global platform for people and professionals from global universities, research institutes, and industries working on topics related to science, engineering, education, and the humanities.

Under the theme 'Nuturing Resilience: Recent Advances in Science, Engineering, and Technology', ICSET 2024 is dedicated to sharing with participants the latest knowledge, discoveries and innovative ideas in the fields of engineering, education, social sciences and the humanities. It is an excellent opportunity for experienced researchers to discover, publish in top-indexed journals, and draw inspiration from the experiences shared by industry experts, keynote speakers, and session speakers.

The main purpose of ICSET is to globally promote critical thinking and its effective use in the fields of engineering, humanities, social sciences and education by providing means to communicate and network between various experts, motivated by similar interests. The International Engineering Conference seeks to facilitate meaningful discussions on current issues, trends and challenges in the humanities, social sciences, sciences, engineering and education. By bringing together experts from around the world, the Conference aims to promote a deeper understanding of the subject and inspire new ideas.

ICSET

https://www.iferp.in/icset/

12-15 AUGUST 2024

TURKU - FINLAND

INSPIRING STEM EDUCATION: SCIENCE ON STAGE EUROPE

https://www.sons2024.eu

Join Science on Stage Europe as they lead the transformation of STEM education across the continent. Their mission? To empower teachers and ignite curiosity in students, shaping a future where STEM thrives.

Supporting 34 member countries, Science on Stage Europe supports innovative teaching practices, promoting a scientifically literate society and inspiring careers in science, computer science and engineering.

At the core of their mission is the belief that 'teachers make a difference'. Through vibrant Science on Stage festivals, educators exchange ideas, demonstrate innovative teaching methods and nurture professional growth.

In 2024, Turku, Finland hosts the 13th European Science on Stage Festival, bringing together educators from all over Europe to share ideas and launch national initiatives. With over 30 countries represented, the festival celebrates the diversity of STEM education practices.

For those eager to participate, visit the official European Festival 2024 website. Get ready to be inspired and shape the future of STEM education!

26 - 30 AUGUST 2024

MILAN - ITALY

XXVIII CONGRESSO NAZIONALE DELLA SOCIETÀ CHIMICA ITALIANA-SCI2024

The Italian Chemical Society-SCI invites you to the SCI2024 – XXVIII National Congress (Conference and Exhibition) scheduled from 26 to 30 August 2024, at the Allianz MiCo Congress Center in Milan. The theme of the event is "Chemistry: Elements of the Future". The SCI National Congress represents the main event of Chemistry in Italy.

We will discuss the key role that chemistry plays in addressing the challenges posed by sustainable development: circular economy, conservation of the environment, mitigation of climate change, energy solutions, safeguarding health and driving the transition to the economy and society of the future.

The congress will bring together high-level chemists of both national and international dominance, representing a broad spectrum of sectors including research, teaching, industry, academia and many professional fields.

An exciting new addition to SCI2024 is the large exhibition area, which offers the chance to explore innovative technical solutions for our work in the different fields. This platform is an opportunity to make valuable connections with industry experts and publishers.

We are pleased to invite you to be part of this exceptional event. It promises an unprecedented opportunity for the exchange of knowledge, the germination of new ideas and the forging of collaborations that will stimulate progress in all areas of chemistry.

We look forward to meeting you at SCI2024 in Milan.

https://sci2024.org/

18 - 20 SEPTEMBER 2024

BERLIN - GERMANY

28TH INTERNATIONAL CONFERENCE ON SCIENCE, TECHNOLOGY AND INNOVATION INDICATORS

This event seeks to explore the intricate dynamics between the concepts of opening and closing in science, technology and innovation, emphasizing their impact on research, policy and practice.

The 28th International Conference on Science, Technology and Innovation Indicators will be held from 18 to 20 September 2024 in Berlin, Germany, and the organizing committee now invites the submission of abstracts. All contributions submitted to the conference will be reviewed by at least two reviewers. Reviewers can but must not disclose their identity. Reviewers will be recruited primarily from the pool of authors they present (first authors only). Therefore, by submitting a document to STI2024, you agree to review up to 3 submissions. If, however, there is still a need for additional reviewers, established experts, who have not submitted a manuscript, they will be invited as reviewers. We really appreciate your support!

Based on the results of the peer review process, the conference program committee will select contributions for presentation to the conference, either as an oral presentation or as a poster presentation

https://sti2024.org/sti-conference/

18 OCTOBER - 6 DECEMBER 2024

NAPOLI, SALERNO, BENEVENTO, CASERTA, AVELLINO - ITALIA

XXXXXXVIII EDITION OF **FUTURO REMOTO**

CO-SCIENCE

Futuro Remoto was founded in 1987 and is the first European event for the dissemination of scientific and technological culture. Since then, an enthralling journey has begun, one that has lasted 38 years in which Italian scientific research, and not only, has told the general public about various successes, countless challenges and, above all, the beauty of knowledge. This year Futuro Remoto - to be held from 18 October to 6 December 2024 - chooses the highly topical theme of CO-SCIENCE. Investigating the true and the false, order and disorder, right and wrong... Futuro Remoto will do this by narrating and experimenting with the vanguard of science and its impact on the quality of life, the environment and social well-being, involving all fields of knowledge and reflecting on the concepts of responsibility, awareness and ethics. The relationship between science and society is central and today more than ever necessary to address the great contemporary challenges.

The programme of this edition is very rich, realised with the support of the Campania Region, the co-organisation of the seven universities in Campania, the partnership of all the main national research bodies and the presence of many international realities.

There are over 400 events and they can be viewed on the Futuro Remoto website: www.futuroremoto.eu.

They range with innovative and engaging proposals in all subject areas, from astronomy to volcanology, botany, mathematics, art and literature to physics, chemistry and biology, design, neuroscience, medicine, geology and much more.

Many - therefore - are the initiatives that will interpret the theme of CO-SCIENCE and this time too, the public will be able to interact, experiment and discover the latest frontiers of knowledge thanks to the valuable presence of scientists, researchers and experts.

Big news is the regional dimension of the XXXVIII edition of FUTURO REMOTO

The XXXVIII edition of Futuro Remoto takes on a regional dimension with events throughout the Campania region, starting in Naples and continuing in Salerno, Benevento, Caserta and Avellino.

NAPLES - Friday 18 to Sunday 20 October 2024
Workshops, lecture shows, exhibitions and many games and escape rooms on the environment, nature and sustainability, the human body, but also on the principles of physics and astronomy await you in the Science Village that will be set up in the City of Science.

SALERNO - Friday 8 November 2024
Futuro Remoto makes a stop in Salerno, where two hubs of activity will be the city centre of Salerno and the University Campus of the University of Salerno. The campus will offer the story of the research that takes place on a daily basis between science and co-science of the 17 UNISA Departments together with other cultural and research realities in the area, in an extraordinary ecosystem of knowledge, skills, collaborations and connections. Interactive workshops for all ages, from the latest applications in the medical field to biotechnology and robotic engineering, spectacular demonstrations from chemical action to drones and virtual reality tell of the latest frontiers of scientific research. In the city centre, a series of meetings and conference shows enliven the symbolic places of the area.

BENEVENT - Friday 22 November 2024
The University of Sannio and the entire city of Benevento are involved in this special edition of Futuro Remoto dedicated to students of all levels. Many venues in the city will host a rich programme of activities, from workshops dedicated to innovation, sustainability & ethical cbo, to those on Co-Science & Crime, to those on energy diagnosis and efficiency, ending with the conference show "La Balena "Giuliana" ed il Dinosauro "Ciro": Co-scienze tra passato e presente".

CASERTA - Friday 29 November 2024
Caserta, with its extraordinary Belvedere di San Leucio, will host the fourth stage of the event, with a special focus on design and Made in Italy, innovation and sustainability. The centrepiece of the activity will also be the Officine Vanvitelli spaces of the University of Campania Luigi Vanvitelli, which will open to the public with their beautiful spaces and tell the story of the many research projects underway. There will also be events and activities in the city centre of Caserta with conferences, shows and visits.

AVELLINO - Friday 6 December 2024
Futuro Remoto's journey through Campania concludes in Avellino, with a programme that also involves many charming city venues that will open to the public with a packed programme of events dedicated to environmental, health and wellness issues.

https://www.futuroremoto.eu/

THE COVER OF THE NEXT ISSUE

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Henri Poincaré

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